C22935

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE PCT NATIONAL STAGE APPLICATION OF
GIORGIO MACOR ET AL.
INTERNATIONAL APPLICATION NO. PCT/EP 2004/051600
FILED: JULY 26, 2004
FOR: PROCESS FOR THE PRODUCTION OF STRONGLY ADHERENT COATINGS
U.S. APPLICATION NO: 10/566,741
35 USC 371 DATE: JANUARY 31, 2006

Group Art Unit: 1792
Examiner: HORNING, JOEL G

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

This Appeal is from the Final Rejection of claims 1-15 and 21 mailed from the USPTO on October 25, 2010.

A Notice of Appeal was timely filed on January 25, 2011. A fee for a one month extension of time is submitted herewith, making this Brief due April 25, 2011. This Brief is timely filed.

The Commissioner is authorized to charge any fee due, or credit any overcharge, as a result of this Amendment to Deposit Account No. 503852.

(1) REAL PARTY OF INTEREST

The real party of interest, by virtue of an asset transfer agreement between Ciba Corporation and BASF SE of July 1, 2009 is:

BASF SE
Carl-Bosch-Strasse 38
6700 Ludwigshafen
Rheinland-Pfalz D-67056, Germany

The application was originally assigned to Ciba Specialty Chemicals Corp. in an assignment recorded in the U.S. Patent and Trademark Office, October 23, 2006, reel/frame 019083 / 0332.

Ciba Specialty Chemicals Corp. changed its name to Ciba Corp. November 1, 2007 in the state of Delaware.

(2) RELATED APPEALS AND INTERFERENCES

Appellant is not aware of any related appeals and interferences for the above application.

(3) STATUS OF THE CLAIMS

Claims 1-15 and 19-21 are pending. Claims 19 and 20 are withdrawn. Claims1-15 and 21 are rejected and are presented for appeal.

(4) STATUS OF AMENDMENTS

The status of the claims is as amended on December 7, 2009, and the amendment was entered before the final rejection of October 25, 2010.

This brings up to date the status of the claims. A clean copy of the claims along with status identifiers is found in an attached Appendix.

(5) SUMMARY OF THE CLAIMED SUBJECT MATTER

Claim 1 is the only independent claim. Claims 2-15 and 21 depend directly or indirectly from claim 1.

Claim 1

A process for the production of a strongly adherent metal coating on a glass, ceramic or polymeric substrate, wherein

a) a low temperature plasma treatment, a corona discharge treatment or a flame treatment is carried out on the glass, ceramic or polymeric substrate,

b) one or more photoinitiators or mixtures of photoinitiators with monomers or/and oligomers, containing at least one ethylenically unsaturated group, or solutions, suspensions or emulsions of the afore-mentioned substances, are applied to the substrate to produce a layer which is optionally dried,

c) irradiating the layer of step b) with from 1 to 1000 mJ /cm^2 of UV/Vis light having wavelengths from 150 to 700 nm to fix the one or more photoinitiators in the layer of step b); and, after said irradiation,

d) on the substrate so precoated with photoinitiator a metal, half-metal or metal oxide is deposited from the gas phase

wherein a coated substrate comprising a glass, ceramic or polymeric substrate affixed to the irradiated layer of step b), which layer of step b) is affixed to a deposited metal, half-metal or metal oxide layer is obtained .

Support for the above independent claim 1 can be found on the 4th paragraph of page 2, the 2nd paragraph of page 5, the 4th paragraph of page 21 of the specification.

Support for claim 2 can be found on the last paragraph of page 2 of the specification.

Support for claim 3 can be found on the last paragraph of page 10 of the specification.

Support for claims 4-6 can be found in page 12-14 of the specification.

Support for claim 7 can be found on the 2nd paragraph of page 27 of the specification.

Support for claims 8 and 9 can be found on the 2nd and 3rd paragraphs of page 22 of the specification.

Support for claim 10 can be found on the last paragraph of page 27 of the specification.

Support for claims 11 and 13 can be found on the 6th paragraph of page 22 of the specification.

Support for claim 12 can be found on the 4th paragraph of page 22 of the specification.

Support for claim 14 can be found on the 1st paragraph of page 28 of the specification.

Support for claim 15 can be found on the 1st paragraph of page 28 of the specification.

Support for claim 21 can be found on the second paragraph of page 22 of the specification.

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-6, 8-13, 15 and 21 stand rejected under 35 USC 103(a) as being allegedly unpatentable over Bauer [1]in view of Affinito[2] in view of Borden[3].

Claims 7 and 14 stand rejected under 35 USC 103(a) as being allegedly unpatentable over Bauer in view of Affinito in view of Borden, as applied to claim 1 above, and further in view of Kohler[4] .

(7) ARGUMENTS

Claims 1-15 and 21 will be argued together, and they stand or fall together.

Claim 1 is directed to a process comprising four steps:

a) pretreating substrate;

b) depositing photoinitiators;

c) fixing photoinitiators by radiation; and

d) depositing metal, half metal or metal oxide.

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[1] Bauer et al., US 6548121
[2] Affinito, US 2004001288
[3] Borden et al., US4233130
[4] Kohler et al., US6251963

Bauer teaches a process comprising:
a) pretreating substrate;
b) depositing photoinitiators; and
c1) coating polymeric material or
c2) depositing metal, half metal or metal oxide.

It is clear that Bauer fails to teach a step of fixing photoinitiators by irradiation, let alone the specific wavelength range of UV/Vis radiation and the specific energy range as claimed; Apparently, Bauer does not recognize the importance of such a step, but simply allows the photoinitiators reacting with the free-radical sites formed at the pretreated substrate, as stated in Bauer's claim 1. Bauer performs the radiation after applying the second polymeric coating for the purpose of curing the polymer.

Affinito, on the other hand, discloses a process to directly deposit a monomer layer to a substrate under vacuum, and the monomer layer can be polymerized by radiation. Apparently Affinito uses radiation for the purpose of polymerization of monomers. Affinito's goal is to find a mild condition for good vacuum vapor depositing. Nothing in Affinito teaches or suggests priming a substrate by depositing / fixing a layer of photoinitiators so that a second layer of metal, half-metal or metal oxide with strong adhesion can be obtained. On page 11 of the Office Action, the Examiner states that Affinito "explicitly teaches using such coatings as 'primer coating', [0004]". In fact, the paragraph [0004] in Affinito's Background section displays nothing more than a boilerplate of types of coating that can be applied to variety of substrates. It is clear that specific knowledge of priming in cannot be found in Affinito to fill the gap between Bauer and the present invention. Even if one skilled in the art was to combine Bauer and Affinito, the results of such combination would, at most, lead to a process comprising steps of a), b), c1) followed by depositing a metal coating as Affinito mentions generally that a metal coating layer can be optionally deposited on the first layer. Therefore, the present invention is not obvious over Bauer in view of Affinito.

Another unobvious aspect of the present process is that step b) is carried out at normal pressure, while that step of Bauer is actually carried out under vacuum, although Bauer may have claimed "under vacuum and at normal pressure". The disadvantage of Bauer is discussed in the Specification - the process requires the use of vacuum apparatus and it is not very efficient and is not suitable for industrial applications having high throughput rates because of low deposition rates[5]. The present

[5] Specification, page 2, paragraph 2.

invention solved the problem by carrying out step b) at normal pressure[6]. Because of the normal pressure deposition, the photoinitiator may not adhere to the substrate tightly, so "fixing" it by radiation before applying metal coating is imperative for the metal to adhere strongly.

Further view of Borden or Kohler is not discussed here since the independent claim 1 is believed to be patentable in light of the above arguments and clarification. Appellants kindly ask that the rejections be reconsidered and reversed.

Respectfully submitted,

Date: April 15, 2011

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Attachments:

Transmittal Letter

Claims Appendix (8)

Evidence Appendix (9)

Proceedings Appendix (10)

[6] Specification, page 3, paragraph 4 ; page 30, Example 1

(8) CLAIMS APPENDIX

1. **(previously presented)** A process for the production of a strongly adherent metal coating on a glass, ceramic or polymeric substrate, wherein
a) a low temperature plasma treatment, a corona discharge treatment or a flame treatment is carried out on the glass, ceramic or polymeric substrate,
b) one or more photoinitiators or mixtures of photoinitiators with monomers or/and oligomers, containing at least one ethylenically unsaturated group, or solutions, suspensions or emulsions of the afore-mentioned substances, are applied to the inorganic or organic substrate to produce a layer which is optionally dried,
c) irradiating the layer of step b) with from 1 to 1000 mJ /cm^2 of UV/Vis light having wavelengths from 150 to 700 nm to fix the one or more photoinitiators in the layer of step b); and, after said irradiation,
d) on the substrate so precoated with photoinitiator a metal, half-metal or metal oxide is deposited from the gas phase
wherein a coated substrate comprising a glass, ceramic or polymeric substrate affixed to the irradiated layer of step b), which layer of step b) is affixed to a deposited metal, half-metal or metal oxide layer is obtained.

2. **(previously presented)** A process according to claim 1, wherein in step d) an irradiation with electromagnetic waves is carried out, either while depositing the metal, half-metal or metal oxide from the gasphase or after the deposition.

3. **(original)** A process according to claim 1, wherein the photoinitiator is a compound or combination of compounds from the classes of benzoins, benzil ketals, acetophenones, hydroxyalkylphenones, aminoalkylphenones, acylphosphine oxides, acylphosphine sulfides, acyloxyiminoketones, peroxy compounds, halogenated acetophenones, phenylglyoxylates, dimeric phenylglyoxalates, benzophenones, oximes and oxime esters, thioxanthones, thiazolines, ferrocenes, coumarins, dinitrile compounds, titanocenes, sulfonium salts, iodonium salts, diazonium salts, onium salts, borates, triazines, bisimidazoles, polysilanes and dyes, and also corresponding coinitiators and/or sensitisers.

4. **(original)** A process according to claim 1, wherein the photoinitiator is a compound of formula I or Ia

(RG)-A-(IN) (I), (IN)-A-(RG')-A-(IN) (Ia),

wherein

(IN) is a photoinitiator base structure;

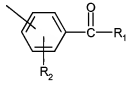
A is a spacer group or a single bond;

(RG) is hydrogen or at least one functional ethylenically unsaturated group; and

(RG') is a single bond or a divalent radical that contains at least one functional ethylenically unsaturated group, or is a trivalent radical.

5. **(original)** A process according to claim 4, wherein in the compound of formula I or Ia

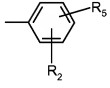
(IN) is a photoinitiator base structure of formula (II) or (III)



(II),

(III),

R_1 is a group (A), (B), (C) or (III)



(A), $-CR_6R_7R_8$ (B)

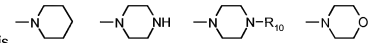
(C);

n is a number from 0 to 6;

R_2 is hydrogen, C_1-C_{12}alkyl, halogen, the group (RG)-A- or, when R_1 is a group (A), two radicals R_2 in the ortho-position to the carbonyl group may also together be -S- or  ;

R_3 and R_4 are each independently of the other C_1-C_6alkyl, C_1-C_6alkanoyl, phenyl or benzoyl, the radicals phenyl and benzoyl each being unsubstituted or substituted by halogen, C_1-C_6alkyl, C_1-C_6alkylthio or by C_1-C_6alkoxy;

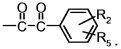
R_5 is hydrogen, halogen, C_1-C_{12}alkyl or C_1-C_{12}alkoxy or the group (RG)-A- ;

R_6 is OR_9 or $N(R_9)_2$ or is  or SO_2R_9;

R_7 and R_8 are each independently of the other hydrogen, C_1-C_{12}alkyl, C_2-C_{12}alkenyl, C_1-C_{12}alkoxy, phenyl or benzyl or R_7 and R_8 together are C_2-C_6alkylene;

R_9 is hydrogen, C_1-C_6alkyl or C_1-C_6alkanoyl;

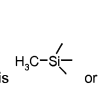
R_{10} is hydrogen, C_1-C_{12}alkyl or phenyl;

R_{11} is C_1-C_4alkyl or  ; and

X_1 is oxygen or sulfur.

6. **(previously presented)** A process according to claim 5, wherein in the compound of formula I or Ia

(RG) is $R_cR_bC=CR_a$-;

(RG') is  or  , and

R_a, R_b and R_c are each independently of the other hydrogen or C_1-C_6alkyl.

7. **(previously presented)** A process according to claim 1, wherein the photoinitiator(s) or mixtures thereof with monomers or oligomers are used in combination with one or more liquids in the form of solutions, suspensions and emulsions.

8. **(previously presented)** A process according to claim 1, wherein an inert gas or a mixture of inert gas with reactive gas is used as the plasma gas.

9. **(original)** A process according to claim 8, wherein air, H_2, CO_2, He, Ar, Kr, Xe, N_2, O_2 or H_2O are used singly or in the form of a mixture.

10. **(previously presented)** A process according to claim 1, wherein the photoinitiator layer applied has a layer thickness of up to 500 nm.

11. **(original)** A process according to claim 1, wherein process step b) is carried out immediately after process step a) or within 24 hours after process step a).

12. **(previously presented)** A process according to claim 1, wherein the concentration of photo-initiator or photoinitiators in process step b) is from 0.01 to 99.5 %.

13. **(original)** A process according to claim 1, wherein process step c) is carried out immediately after process step b) or within 24 hours after process step b).

14. **(original)** A process according to claim 1, wherein drying in process step c) is effected in ovens, with hot gases, heated rollers or IR or microwave radiators or by absorption.

15. **(previously presented)** A process according to claim 1, wherein irradiation in process step c) and/or d) is effected with a source that emits electromagnetic waves of wavelengths in the range from 200 nm to 700 nm, or by electron beams.

16-18. **(cancelled)**

19. **(withdrawn)** A strongly adherent coating obtained by a process according to claim 1.

20. **(withdrawn)** A strongly adherent coating obtained by a process according to claim 2.

21. **(previously presented)** A process according to claim 2, wherein an inert gas or a mixture of inert gas with reactive gas is used as the plasma gas.

(9) EVIDENCE APPENDIX

No evidence is submitted.

(10) RELATED PROCEEDINGS APPENDIX

As the appellants are not aware of any other related proceedings, no copies of decisions rendered by a court or the board are attached.